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ner of his attack I have no wish to retaliate. Under the torrent of contemptuous words — some of them fearfully and wonderfully made — which he has been pleased to pour upon me, I feel almost inclined to say, with Falconbridge —

“Zounds! I was never so bethumped with words,
Since first I called my brother’s father ‘dad.’”

Dr. Stirling is undoubtedly a man of great philosophical powers; I have always regarded him as in some sense a master in philosophy; but I think it were well if he could learn to use the language of those who can afford to respect others because they respect themselves.

I am, sir, your obedient servant,

EDWARD CAIRD.

UNIVERSITY OF GLASGOW, March 8, 1879.

VOLUNTARY MOTION.

In the *Popular Science Monthly* for August, 1878, there is an interesting discussion, by Professor Payton Spence, M.D., of the question of the rise of voluntary motion. The muscles involved in the pronunciation of the sound of A are assumed at twenty, including those of the vocal chords, the back part of the mouth, the tongue, the cheeks, the lips, and the chest. Allowing three distinct degrees of contraction of each muscle, he finds 3,113,884,401 possible combinations of muscular contractions, only one of which can produce the sound A. Supposing the child to know nothing about it, and to have no organic tendencies in the direction towards it, in learning how to make this sound by combinations of muscles, the child would experiment for thirty years, making 100 experiments in a minute.

When we consider that the child learns, not only one of the possible combinations of twenty muscles, but the entire command of the combinations of the 450 muscles of the body, we see that the accumulated acquisitions of the slow experience of his race, and of all animals, form a reservoir of inherited acquirement in each individual, and that, in comparison to this inherited ability, the ability that he acquires by his own experience amounts only to the ratio of 1 in 100,000.